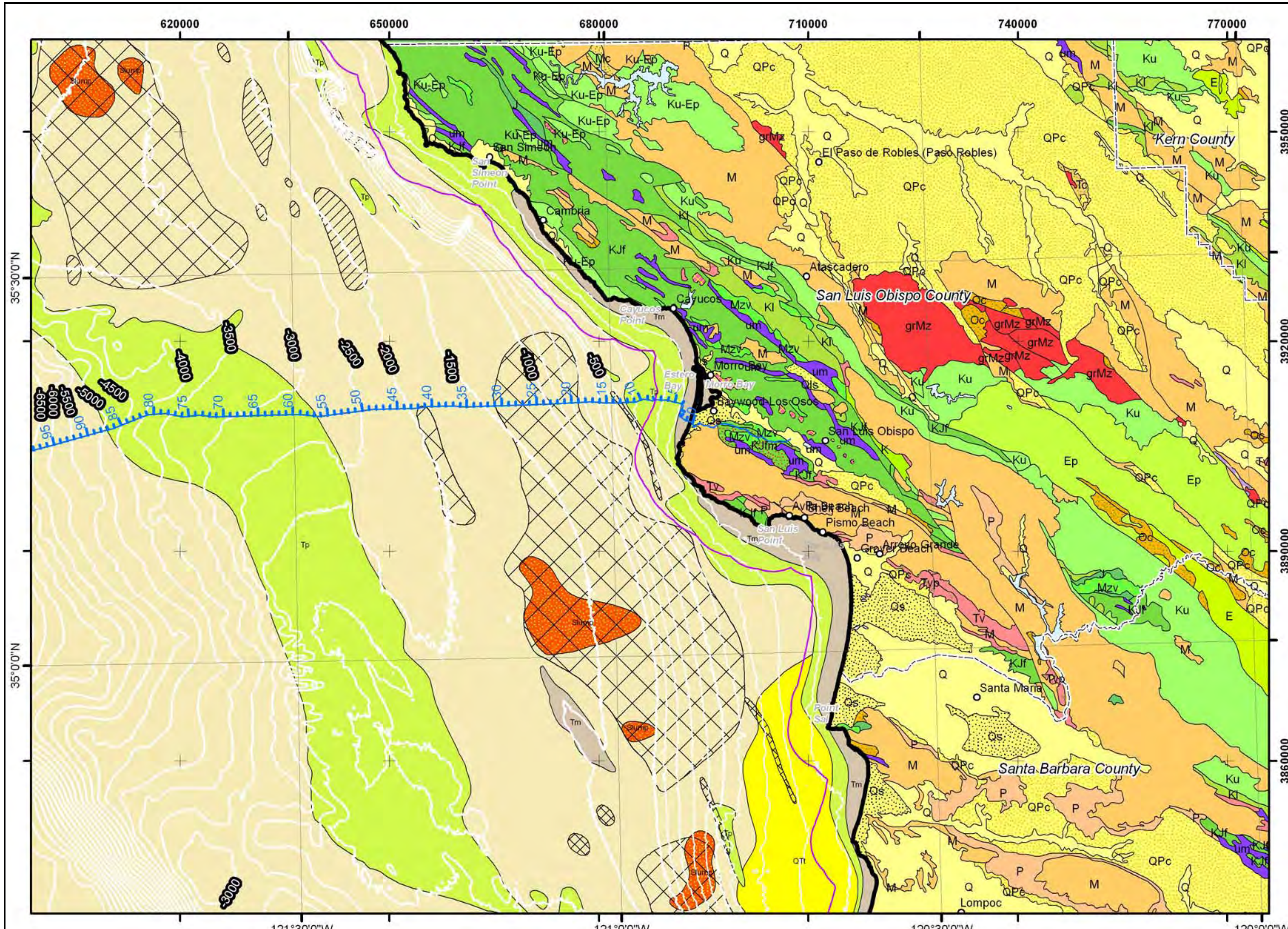
October 2008
Project No. 0702-3361



Legend

Proposed Cable Route with Kilometer Post

California/Federal Three Nautical Mile Jurisdictional Boundary

Cities

Bathymetric Contour Intervals (feet):
a. 0 to -1000 ft: 100 ft
b. Deeper than -1000 ft: 500 ft

County Boundaries

Coastline

Gas

Area of acoustic anomaly (possibly indicating trapped shallow gas)

Buried channel

Zones of discontinuous gas-charged reflectors. Reflectors lie within upper Miocene and Pliocene sedimentary rock, within unconsolidated Quternary sediment, and along faults.

Zone in which there is a continuous gas-charged reflector. Zone is generally shallow (30m) and lies at or near the base of the unconsolidated Quaternary sediment.

See Figure 2B for Onshore and Offshore Geologic Unit Descriptions

Notes:

1. Onshore Geology: George J. Saucedo, David R. Bedford, Gary L. Raines, Robert J. Miller, and Carl M. Wentworth, "GIS Data for the Geologic Map of California", Version 2.0, CD-ROM 2000-007, Department of Conservation, Division of Mines and Geology, Sacramento, California, 2000. The digital database contains the geologic units and faults as shown on the Geologic Map of California by Charles W. Jennings published in 1977.

2. Offshore Geology: McCulloch, D.S, 1989, Geologic Map of the South-Central California Continental Margin, in Greene, H.G. and M.P. Kennedy, eds., California Continental Margin Geologic Map Series, Map Numbers 4A and 4C, CA Division of Mines and Geology, Scale 1:250,000.

3. Bathymetry
   a. MBARI, 2001, Santa Barbara Multibeam Survey, MBARI Monterey Bay Multibeam Survey Digital Data Series No. 4, Monterey Bay Aquarium Research Institute, Moss Landing, CA (CD-ROM).

   b. National Geophysical Data Center, 2001, NOS Hydrographic Survey Data, Version 4.1, U.S. National Oceanic and Atmospheric Administration, National Geophysical Data Center, Boulder, CO (CD-ROM).

N

1:600,000

0 10 20 40

Kilometers

REGIONAL GEOLOGY
AT&T Asia-America Gateway Project
Offshore San Luis Obispo, California

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padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS
AT&T Asia America Gateway

REGIONAL GEOLOGY
FIGURE 4.6-3a

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Offshore Geologic Units

- Q — Q, Unconsolidated deposits of Quaternary age, includes ponded sediments.
- Qf — Qf, Quaternary fan deposits.
- Qt — Qt, Unconsolidated marine terrace deposits of probable Pliocene age.
- Qp — Qp, Unconsolidated marine shelf and slope deposits of late Pleistocene age.
- Qsp — Qsp, Sediments that may correlate with the San Pedro formation.
- QTs — QTs, Undifferentiated sediments and sedimentary rocks of Quaternary and Tertiary (Pliocene and Miocene) age.
- QTt — QTt, Undifferentiated terrace deposits of Quaternary and late Tertiary (?) age.
- Tp — Tp, Undifferentiated sedimentary rocks of Pliocene age.
- Tpr — Tpr, Undifferentiated sedimentary rocks of early Pliocene age an late Miocene age.
- Tm — Tm, Undifferentiated sedimentary rocks of Miocene age.
- Tmv — Tmv, Volcanic rocks of Miocene age.
- Tmu — Tmu, Undifferentiated volcanic and sedimentary rocks of Miocene age.
- Tmp — Tmp, Plutonic and hypabyssal rocks of Miocene age.
- To — To, Sedimentary rocks of Oligocene age.
- Te — Te, Sedimentary rocks of Eocene age.
- Tep — Tep, Sedimentary rocks of Eocene and Paleocene age.
- Tv — Tv, Volcanic rocks of Tertiary age.
- Ku — Ku, Undifferentiated sedimentary rocksof Late Cretaceous age.
- TMz — TMz, Undifferentiated igneous rocks of Miocene age and metamorphic rocks of pre-Late Cretaceous age.
- Mz — Mz, Metamorphic rocks of pre-Late Cretaceous age.
- m — m, Metamorphic rocks of unknown age.
- gr — gr, Grantic rocks, chiefly dioritic, of Mesozoic age.
- Channel Fill
- Channel Fill (inferred)
- Slump
- Creep
- Block Glide
- Levee
- Sediment Flow

Onshore Geologic Units

- C — C, Carboniferous marine
- Ca — Ca, Cambrian marine
- D — D, Devonian marine
- E — E, Eocene marine
- Ec — Ec, Eocene nonmarine
- Ep — Ep, Paleocene marine
- J — J, Jurassic marine
- K — K, Cretaceous marine undivided(in part nonmarine)
- KJf — KJf, Franciscan Complex
- KJfm — KJfm, Franciscan melange
- KJfs — KJfs, Franciscan schist
- Kl — Kl, Lower Cretaceous marine
- Ku — Ku, Upper Cretaceous marine
- M — M, Miocene marine
- Mc — Mc, Miocene nonmarine
- Mzv — Mzv, Mesozoic volcanic and metavolcanic rocks; Franciscan volcanic rocks
- O — O, Oligocene marine
- Oc — Oc, Oligocene nonmarine
- P — P, Pliocene marine
- Pm — Pm, Permian marine
- Pz — Pz, Paleozoic marine, undivided
- Pzv — Pzv, Paleozoic metavolcanic rocks
- Q — Q, Alluvium (mostly Holocene some Pleistocene);Quaternary nonmarine; Quaternary marine
- QPc — QPc, Plio-Pleistocene nonmarine; Pliocene nonmarine
- Qg — Qg, Glacial deposits
- Qls — Qls, Selected large landslide deposits
- Qrv — Qrv, Recent (Holocene) volcanic flow rocks(or predominantly flow rocks)
- Qrvp — Qrvp, Recent (Holocene) pyroclastic rocks and volcanic mudflow deposits
- Qs — Qs, Extensive sand dune deposits
- Qv — Qv, Quaternary volcanic flow rocks(or predominantly flow rocks)
- Qvp — Qvp, Quaternary pyroclastic rocks and volcanic mudflow deposits
- SO — SO, Silurian and/or Ordovician marine
- TK — TK, Tertiary-Cretaceous Coastal Belt rocks
- Tc — Tc, Tertiary nonmarine, undivided
- Ti — Ti, Tertiary intrusive rocks
- Tr — Tr, Triassic marine
- Tv — Tv, Tertiary volcanic flow rocks(or predominantly flow rocks)
- Tvp — Tvp, Tertiary pyroclastic rocks and volcanic mudflow deposits
- gb — gb, Mesozoic gabbroic rocks
- gr — gr, Undated granitic rocks
- gr-m — gr-m, Granitic and metamorphic rocks, undivided, of pre-Cenozoic age+B84
- grCz — grCz, Cenozoic (Tertiary) granitic rocks
- grMz — grMz, Mesozoic granitic rocks
- grPz — grPz, Paleozoic and Permo- Triassic granitic rocks
- grpC — grpC, Precambrian granitic rocks
- ls — ls, Limestone of probable Paleozoic or
- m — m, Undivided pre-Cenozoic metasedimentary and metavolcanic rocks
- mv — mv, Undivided pre-Cenozoic metavolcanic rocks
- pC — pC, Precambrian rocks, undivided
- pCc — pCc, Precambrian igneous and metamorphic rock complex
- sch — sch, Schist of various types and ages (either metasedimentary or metavolcanic)
- um — um, Ultramafic rocks, chiefly Mesozoic
- water

Source Fugro 2008

REGIONAL GEOLOGY - LEGEND
FIGURE 4.6-3b

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marine alignment charts (Alcatel-Lucent 2008), published literature, and publicly-available data from various sources. The seafloor conditions encountered along the proposed cable route are shown in Figure 4.6-4 and summarized on Table 4.6.1 below.

Table 4.6-1. Sediments Encountered Along the Proposed Marine Cable Route

Material Type	Approximate Location (Kilometer Posts [KP])	Percent of Route Between KP 0 and KP 95
Fine-Grained (Silt/Clay)	0-3.5, 8.2-56.3, 61.2-71.2, 88.5-95.0	71.6
Coarse Grained (Sand/Gravel)	3.5-8.2, 56.3-56.8, 57.7-61.2, 71.2-72.8, 72.9-76.0, 76.7-83.3	21.1
Subcropping Rock	72.8-72.9	0.1
Outcropping Rock	8.0-8.1, 56.8-57.7, 76.0-76.7, 83.3-88.5	7.2

Source: Alcatel-Lucent 2008

As the proposed cable route proceeds offshore, near-surface seafloor conditions consist of sandy silt, silty sand, and some gravel with scattered areas of outcropping rock. The seafloor consists of fine-grained sediments (silts and clays) out to about KP 3 near where the alignment turns north for approximately 1.2 miles (1.9 km) to avoid several areas of outcropping sedimentary rock. As the proposed alignment turns to the west at about KP 3.5, it crosses areas of coarser-grained sediment to KP 4 where the surficial geology changes to coarse sand, gravel and patches of outcropping sedimentary rock.

The proposed cable alignment crosses an area of rock at KP 8 before the data show a transition to fine-grained sediments at approximately KP 8.2. The proposed cable alignment crosses the active Hosgri fault zone at approximately KP 12 (Figure 4.6-2). Fine-grained sediments characterize the seafloor along the proposed route as it crosses the Santa Maria Basin, until approximately KP 56, where coarse sand with some outcropping rock is present. This outcropping rock is encountered along the proposed cable route from approximately KP 56.8 to KP 57.7. The zone of coarse-grained sediment extends to about KP 61. This area of coarse sand and outcropping rock appears to be associated with the Santa Lucia Bank fault zone, which is crossed by the proposed cable route at this location. Proceeding farther offshore, fine-grained sediments predominate until KP 71, where the proposed route encounters an area of coarse-grained sands and gravels with scattered rock outcrops.

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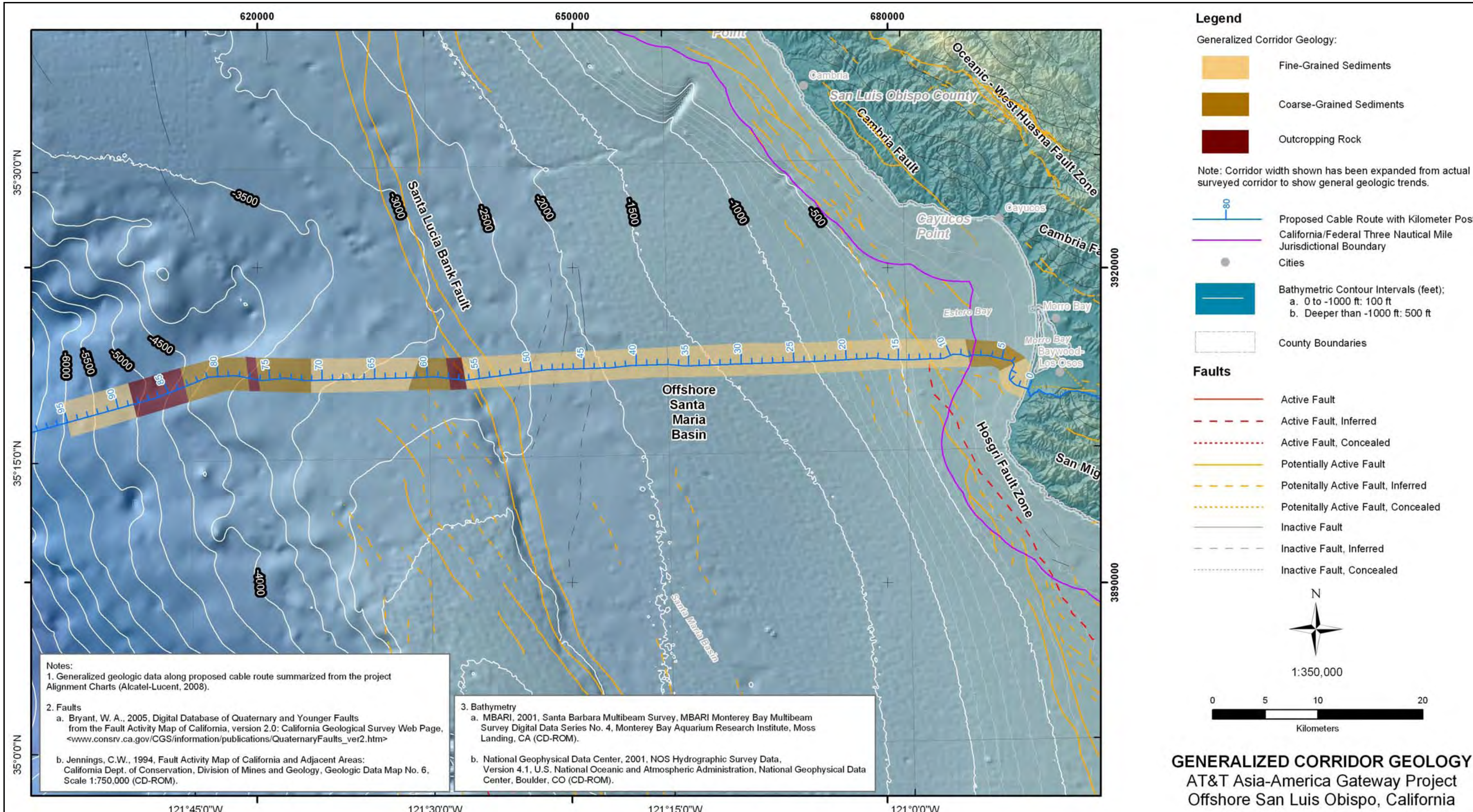

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GENERALIZED CORRIDOR GEOLOGY
FIGURE 4.6-4

Back of Figure

The proposed cable alignment crosses subcropping rock near KP 73, and crosses an area of outcropping weathered rock from about KP 76 to KP 76.7. Otherwise, the proposed cable route extends through coarse-grained sediments until about KP 83.3 where outcropping, faulted blocks of sedimentary rock occur for approximately 3.2 miles (5.1 km) until KP 88.5. These faulted blocks are located along the Santa Lucia Escarpment. The faults in this area are poorly known, but may be potentially active. The sediments along the proposed cable route are primarily fine grained from KP 88.5 to the 6,000-foot (1,830 m) isobath, located at about KP 95, at which point the cable will no longer be buried.

In addition to areas of coarse sand, gravel and outcropping rock, the marine alignment charts (Alcatel-Lucent 2008) and publicly-available data indicate several areas of possible trapped shallow gas, defined as gas that is within 98 ft (30 m) of the surface (McCulloch 1989), and gas-charged sediments, are located along the proposed cable route (Figures 4.6-3a and -3b). Data from the California Division of Mines and Geology (now the California Geological Survey [CGS]) and the United States Geological Survey (USGS), as compiled by McCulloch (1989), show an area with shallow, potentially gas-charged sediments that is crossed by the proposed cable route at about KP 13. Two areas of acoustic anomalies, possibly indicating trapped shallow gas, are located along the proposed cable route between about KP 19 and KP 31, and near KP 41. Finally, the marine alignment charts (Alcatel-Lucent 2008) show an area of gas-charged sediment near KP 56.

In general, the proposed cable route traverses seafloor composed of fine-grained sediments. However, those sediments in some areas comprise a thin veneer overlying rock, or rock sporadically outcropping at the seafloor surface as described above. Localized slope failures are present in the Santa Maria Basin and on the Santa Lucia Escarpment (McCulloch 1989); however, no mass movement is indicated along the proposed cable route (Alcatel-Lucent 2008).

Faulting and Seismicity

The San Luis Obispo/Morro Bay area is in the southern portion of the Coast Ranges Geomorphic Province, a seismically active region of Southern California. This area has experienced numerous historic seismic events centered on both onshore and offshore faults. Regional onshore faults that can be expected to cause seismic shaking in the Project area during an earthquake include the Los Osos fault, located approximately 0.4 mile (0.6 km) from the Project area (KP 0), and the San Andreas fault, located approximately 45 miles (72 km) northeast of the landfall at Montaña de Oro State Park (Figure 4.6-1). Other onshore faults that have been recognized to cause seismic shaking in the Project area include the San Simeon fault, the Cambria fault, and the Oceanic-West Huasna fault. Two offshore faults: the Hosgri and the Santa Lucia Bank faults can also be expected to cause seismic shaking in the Project area. Given that the proposed cable route crosses these two faults, they are discussed in detail in the following sections.

Hosgri Fault. The Hosgri Fault Zone, which lies within the transpressional plate margin of south-central coastal California, is the southernmost component of the complex San Gregorio - Hosgri fault system. The Hosgri Fault Zone extends about 70 miles (113 km) from Point Pedernales to near San Simeon, trending to the northwest and remaining offshore for its entire length. It forms the western boundary of the Los Osos kinematic domain (Lettis *et al*. 2004), which is made up of several distinct structural blocks (Figure 4.6-1). The Hosgri fault is primarily a strike-slip fault with a subordinate amount of dip slip that varies along strike (Hanson *et al.* 2004). The CGS defines a fault as active if it has “had surface displacement within Holocene time (the last 11,000 years)”. Several studies (*i.e.* Lettis *et al.* 2004, and Bryant 2005) have shown that the Hosgri fault is active (Figure 4.6-2). As previously mentioned, the proposed cable route crosses the Hosgri fault at about KP 12 and further west it crosses the Santa Lucia Bank fault (Figure 4.6-2).

Santa Lucia Bank Fault. The Santa Lucia Bank fault is part of an 18 mile- (29 km) wide zone of faulting along the west margin of the offshore Santa Maria kinematic domain (Figure 4.6-1). The fault zone consists of a number of splays trending to the northwest and appears to be characterized by reverse and strike-slip motion (McCulloch *et al*. 1980). The magnitude 6.6 Lompoc earthquake of 1927 may have been centered on a splay of the Santa Lucia Bank fault offshore Point Arguello (Lettis *et al.* 2004), but most workers (Bryant 2005 and others) classify the fault as potentially active. The CGS defines a fault as potentially active if it has “had surface displacement within Quaternary time (the last 1.6 million years)”. The Santa Lucia Bank Fault Zone is crossed by the proposed cable route from about KP 56 to KP 61 as shown in Figure 4.6-2.

4.6.2 Regulatory Setting

California is a highly geologically-active area, and therefore has substantial regulatory requirements. The regulations listed below are at least partially applicable to the proposed Project.

California Seismic Hazards Mapping Act of 1990 (Public Resources Code § 2690 and following as Division 2, Chapter 7.8) and the Seismic Hazards Mapping Regulations (CCR Title 14, Division 2, Chapter 8, Article 10)

Designed to protect the public from the effects of strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes, the act requires that site-specific geotechnical investigations be conducted identifying the hazard and formulating mitigation measures prior to permitting most developments designed for human occupancy. Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California (CGS 2008), constitutes the guidelines for evaluating seismic hazards other than surface fault rupture and for recommending mitigation measures as required by Public Resources Code § 2695(a). This act does not specifically apply to marine cable routes.

Uniform Building Code (UBC) and the California Building Code (CBC)

The UBC and CBC contain requirements related to excavation, grading, and construction. Applicable codes and industry standards related to various geologic and soil features are identified in Appendix 8-3, Civil Engineering Design Criteria, UBC. The Project site is in the UBC and CBC Seismic Zone 4; the requirements included in the UBC and CBC for Zone 4 shall apply to the proposed Project, including consideration for ground acceleration in structural design to provide earthquake-resistant design. According to the CBC, a grading permit is required if more than 50 CY (38.2 m^3) of soil are moved. Chapter 33 of the CBC contains requirements relevant to the construction of pipelines alongside existing structures. CCR Title 23, §§ 3301.2 and 3301.3 contain the provisions requiring protection of the adjacent property during excavations and require a 10 day written notice and access agreements with the adjacent property owners. The UBC and CBC do not specifically apply to offshore marine cables.

Alquist-Priolo Special Studies Zones Act of 1972 (California Public Resources Code §§ 2621-2630)

This act requires that "sufficiently active" and "well-defined" earthquake fault zones be delineated by the state geologists and prohibits locating structures for human occupancy across the trace of an active fault. This act does not specifically apply to marine cables, but it does help define areas where fault rupture is most likely to occur onshore.

4.6.3 Significance Criteria

Based on the CEQA Guidelines, a geologic impact would be considered significant and require mitigation if any of the following conditions, or the potential thereof, would result from construction or operation of the proposed Project:

1. Change to unique geologic features;
2. Triggers or accelerates any geologic processes such as erosion or terrestrial or marine landslides;
3. Exposes people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, including liquefaction, or landslides;
4. Increases the probability of additional environmental damage if earthquake induced ground motion damages project components;
5. Any alteration of topography that is not restored to its natural conditions within six months of the project's completion or result in the loss of a unique geologic feature; or
6. Project installation prevents the recovery of economic minerals.

4.6.4 Impact Analysis and Mitigation

The following impact assessment addresses potential effects of construction and operation of the proposed Project on geologic resources. Potential geologic hazards that may impact the Project are also described, including but not limited to surface fault rupture, seismicity, liquefaction, lateral spreading, submarine landslides and debris flows, and turbidity currents. Impacts from alternative cable abandonment methods are included in this discussion.

Impact Discussion

Onshore Impacts

<u>Operations, Maintenance, and Abandonment Less Than Significant Impacts</u>. The cables are inert and do not normally require maintenance, resulting in no impact on geologic resources under normal conditions. If repairs were needed at some time

during the life of the Project, the impacts would be qualitatively similar to those occurring during cable installation, and would consist of potential soil disturbance impacts associated with the recovery of the cable from the conduit. These effects are expected to be local and temporary and are considered less than significant (Class III).

If the cable is removed upon abandonment in the future, geologic impacts would be essentially the same as those of installation. Abandonment in place would have no impacts.

Potentially Significant Impacts

Impact GEO-1: Erosion Impacts during Onshore Construction Activities

Construction during the wet season has the potential to result in erosion along access roads and at work zones along the cable conduit route (Potentially Significant, Class II).

The terrestrial route extends along a ridgeline eastward from the Sandspit Beach parking lot to the existing AT&T cable facility along Los Osos Valley Road. The conduit system will be accessed via existing unpaved access roads, as shown on Figures 2-5a through 2-5d. Erosion impacts could result from use of the access routes during the wet season (October 15 to April 15) from vehicles and equipment traveling back and forth along access roads and overland between the conduit system manholes.

Based on these conditions and with onshore construction expected to commence before April 15th, significant geologic impacts may result from erosion during construction activities along existing access roads and along the conduit system route. Mitigation measure WQ-1, discussed within Section 4.7 - Hydrology and Water Quality, is recommended in this segment if construction occurs during the wet season.

Mitigation Measure for Impact GEO-1: Onshore Erosion Impacts

MM-WQ-1. **Prepare and Implement Storm Water Pollution Prevention Plan.** Prior to issuance of construction permits, AT&T shall submit to the CSLC, evidence of an approved Storm Water Pollution Prevention Plan (SWPPP) covering all aspects of the Project and specifically addressing conditions and measures to be implemented to minimize the effects of erosion and/or a spill of toxic substances. The SWPPP will include, but not be limited to, spill contingency measures, vehicle and equipment maintenance, and any dewatering activities that become necessary in accessing manholes.

MM-TERBIO-3c. **Erosion Control Monitoring.** To ensure that all repaired erosion features along the Rim Trail and any newly created erosion areas due to Project implementation are properly stabilized utilizing the erosion and sedimentation control measures outlined above, all repaired areas shall be monitored during the subsequent rainy season. Specifically, the following measures shall be implemented:

- All erosion repair areas (both minor and major) of the terrestrial cable route right-of-way (ROW) shall be identified, numbered accordingly, and illustrated on a site plan for easy reference;
- The stabilized erosion features shall be monitored for overall effectiveness during three significant storm events (>1-inch [2.5 cm] rain in 24-hour period) during the pending subsequent season;
- Any erosion control deficiencies including, but not limited to rills, gullies, waterbar(s) failure, and localized slope failures shall be identified and appropriate corrective actions using the measures outlined above shall be discussed in a monitoring report;
- Copies of the monitoring report shall be provided to the appropriate regulatory agencies, landowner representatives, and AT&T within 48 hours of erosion feature documentation;
- Recommended measures within the report shall then be implemented within 72 hours by an AT&T on-call contractor; and,
- Any areas requiring repair will be monitored using these same protocols the following rainy season.

Offshore Impacts

<u>Construction-Related Less Than Significant Impacts</u>. Cable installation will require burial from the terminus of the conduit (located in approximately 33 ft [10 m] of water) offshore to the 6,000-foot (1,830 m) isobath, located at about KP 95. This installation

will involve minor disturbances of sediments due to the actions of diver-operated and/or Remotely Operated Vehicle- (ROV) mounted water jets and from operation of the sea plow. Divers will use water and air jets to bury the cable out to the 98-foot (30 m) isobath, an ROV fitted with a water jet will be used for burial from 98 ft (30 m) to approximately 328 ft (100 meters), and a sea plow will be used to bury the cable for the remainder of the buried segment out to the 6,000-foot (1,830 m) isobath. These operations will result in localized displacement of seafloor sediments along the proposed cable route. Cable burial using water jetting does not require a trench since the weight of the cable causes it to sink into the underlying sediments that are loosened by the action of the water jet.

The width of the area disturbed in this manner is approximately equal to twice the depth of burial, resulting in a narrow corridor about 6.6 ft (2.0 m) wide assuming a burial depth of 3.3 ft (1.0 m). The action of the sea plow in deeper waters creates surficial disturbances with roughly the same area based on the combined effects of the furrow made by the plow shank plus the tracks of skis and wheels that keep the sea plow in contact with the seafloor (SAIC 2000).

The cable may have to be laid directly on the seafloor if burial is not possible due to localized conditions such as shallow surficial sediments or outcropping rock. In these areas, the amount that the cable can move laterally is controlled by the “slack” in the cable. This “slack” is less than one percent in the nearshore area, so the cable would not be expected to shift more than 1 ft (0.3 m) laterally, resulting in a 1 foot-wide (0.3 m) corridor of possible movement (SAIC 2000). Given that the cable will be laid on the seafloor in these sedimentary rock areas, there will be minimal disturbance to seafloor geology (Figure 4.6.3a and Alcatel-Lucent 2008). The installation or the presence of the cable is unlikely to cause a seismic event and the potential for seafloor slumping of the underlying sedimentary rock during installation is minimal. All areas with the potential for triggering seafloor instabilities resulting from cable installation will be avoided.

As explained above, the depth of cable burial and the narrow corridors that are required to install the cable result in a minimal area of existing seafloor being disturbed during that process. Due to the minimal areas involved and the installation methods used, no significant, long-term effect on seafloor topography will result. Given the minimal area affected by the installation, and the temporary nature of the disturbances, these disturbances are insignificant. In summary, the impacts of the Project on seafloor geology are less than significant (Class III).

Oil and gas deposits are present in the Project area as shown in Figure 4.6-3a; however, because of the minimal area affected by the Project and the temporary nature of the disturbances, the Project will have no effect on oil and gas extraction or on any other unique geological features. At this time, no Federal Oil and Gas Lease Blocks are in the Project area, and no plans exist to recover hydrocarbon resources in State-waters within the California/Federal three nautical mile (5.6 km) jurisdictional boundary (Greenwood personal communication, 2008). Project impacts should not preclude the possible future development of the hydrocarbon resources in the region. The potential impacts of the Project on oil and gas resources are thus less than significant (Class III).

As discussed above, active faults are crossed by the proposed cable alignment. A seismic event on one of these faults could damage or rupture the cable; however, AT&T will repair the cable if any problems are detected. No submarine canyons or other potentially unstable areas that could be affected by underwater landslides are traversed by the proposed cable route. A break in the cable due to a seismic event would have a less than insignificant impact on the environment. Liquefaction is not anticipated to be a threat to the proposed cable. Thus, the threat of damage to the cable route from seismic events in the Project area is less than significant (Class III).

The review of available data for the Project area did not indicate the presence of any economic minerals along the cable route, so cable installation will not prevent the recovery of valuable minerals (Class III).

Burial of the cable in sands along the route would make these sands unavailable for other uses such as potential borrow material for beach replenishment or other purposes. However, the small area affected by the cable, the presence of nearby cables, and the fact that the majority of the proposed route crosses silts and clays (see Table 4.6.1) makes the amount of sand made unavailable by the Project less than significant (Class III).

No geologic impacts are expected during normal cable operations. Localized disturbance of the seafloor may occur at some point during the life of the cable if repairs are necessary. These cable repairs would have similar effects to those of the original installation, but would disturb an even smaller area and therefore the potential effects are expected to be less than significant (Class III).

Options for future retirement of the cable include abandonment of the cable in place, or removal and salvage of the cable. Abandonment of the cable in place would have no impacts, whereas cable removal would have impacts similar to those associated with installation (Class III).

Rationale for Mitigation

Mitigation measures have been incorporated to reduce potential impacts from erosion and sedimentation from onshore construction activities. The objective of the mitigation is to reduce the potential for impacts to sensitive habitats from erosion and sedimentation of soils along the terrestrial cable conduit route.

Table 4.6-2. Summary of Geologic Impacts and Mitigation Measures

Impact	Mitigation Measures
Impact GEO-1: Onshore Erosion Impacts During Construction Activities. Construction during the wet season has the potential to result in erosion along access roads and at work zones along the onshore cable conduit route (Potentially Significant, Class II).	**Implement MM-WQ-1:** Prepare and implement a Storm Water Pollution Prevention Plan. **Implement MM-TERBIO-3c:** Erosion Control Monitoring.

4.6.5 Impacts of Alternatives

The CEQA Guidelines emphasize that a selection of reasonable alternatives and an adequate assessment of these alternatives be presented to allow for a comparative analysis for consideration by decision-makers. Two alternatives are discussed for this EIR: (1) No Project Alternative, and (2) Cable Re-route/Maximum Burial Alternative.

No Project Alternative

Under this alternative, the Project would not go forward and the goals and objectives of the Project would not be met. No new cables would be installed, resulting in no potential for impacts on seafloor geology or geologic processes. However, existing erosion problems along the onshore conduit route would not be stabilized through implementation of mitigation measure MM-TERBIO-3c under the proposed Project. Without repairs the existing onshore erosion could be expected to continue and over a longer term could result in potentially significant (Class I) impacts.

Cable Re-route/Maximum Burial Alternative

This alternative minimizes the amount of outcropping rock crossed by the cable in the proposed route, therefore maximizing the amount of cable that will be buried out to the 6,000-foot (1,830 m) isobath. This alternative would also consider regulatory and safety requirements for spacing of fiber optic cables. Thus, this alternative would result in an increase in the area of sedimentary bottom affected during cable installation as described in Section 4.6.4, Impact Analysis and Mitigation. However, impacts to the sedimentary geology would remain less than significant. In other respects, the geologic impacts are similar between the proposed route and this alternative route, and would be less than significant (Class III).

4.6.6 Cumulative Projects Impacts Analysis

The onshore cable construction activities would be limited to access roads along the existing terrestrial cable conduit route and at the Sandspit Beach parking lot at Montaña de Oro State Park. Projects identified within the study area that are proposed or underway along the terrestrial route are individually small in scope and cumulatively would not result in a significant impact to geology and soils.

Although some of the cumulative projects have marine components, the nature of the projects and the timelines involved with them suggest that they will not affect the proposed Project. In addition, the proposed Project would not add to possible impacts from these other projects. Hence cumulative impacts on geology and soils associated with the proposed Project are less than significant (Class III).